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The Generic Classification of the Asian Crassulaceae

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Molecular and morphological data presented are supported the segregation of the family Crassulaceae into two subfamilies, Crassuloideae and Sedoideae (Hart 1995). The subfamily Crassuloideae is monotypic and consists of *Crassula*. Opinions about the systematics of the subfamily Sedoideae are still divergent, and thus this becomes one of urgent problems in Crassulaceae. Main focus extends to the genus *Sedum* and allied groups, which Berger (1930) classified in subfamily Sedoideae. Various systems of the family or subfamily which were proposed until 1995 are classified into two groups with opposing viewpoints. One view retains *Sedum* as a catchall taxon and recognizes only a few additional genera under the Sedoideae, and the other segregates some groups as genera (e.g., *Rhodiola*, *Hylotelephium*, *Phedimus*, etc.) from *Sedum* on the basis of unique sets of morphological characters. It is necessary to resolve these confliction through testing the monophyletic status of genera separated from *Sedum* and clarifying their phylogenetic relationships to *Sedum* (*s. str.*). About 300 species of Sedoideae are distributed in the east Asian region (Ohba 1978) and most genera segregated from *Sedum* are restricted in eastern Asia. This region can therefore be regarded as both a center of generic and infrageneric diversification and a center of distribution for the Sedoideae. We estimated the phylogeny of the Sedoideae on a broad scale across eastern Asia using sequence variation of the cpDNA *trnL-trnF* spacer and the Internal Transcribed Spacer regions of the nuclear ribosomal repeats to clarify the phylogenetic positions of Asian Sedoideae. Our results agreed with most of the former studies since 1995, except for the *Telephium* clade. All east Asian genera except *Sedum*(*s. str.*) were grouped in the *Telephium* clade. However, the clade is determined to be polyphyletic. Genera *Rhodiola*, *Pseudoledum* and *Phedimus* comprise a sister clade with the united clade of the *Aeonium*, *Acre*, *Leucosedum* and *Sempervivum* clades. The clade consisting of *Rhodiola*, *Pseudoledum* and *Phedimus* is named the *Rhodiola* clade. Genera *Hylotelephium*, *Orostachys*, *Meterostachys*, and *Sinocrassula* in the *Telephium* clade are closely related. In this lecture our preliminary study on *Kungia* will be introduced. A new system of the Asian Crassulaceae will be proposed.